REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The above amendment is submitted solely to moot the outstanding formality-based rejection of alleged indefiniteness and presents the claims in better form for appeal. Accordingly, entry of same is believed appropriate under 37 C.F.R. §1.116.

The rejection of claims 1-9, 11-16 and 40-46 under 35 U.S.C. §112, second paragraph, is respectfully traversed.

The context of claim 1 and its dependent claims make clear that "their size" refers to "segment" size. In any event, the above amendment should clearly moot this ground of rejection. If there is any remaining formality-based issue, it is respectfully requested that the undersigned be telephoned for prompt resolution.

The rejection of claims 1-7, 9, 11, 17-18, 23-24, 26, 35-38, 40, 44-46 and 48 under 35 U.S.C. §102 as allegedly anticipated by McMahon '699 is respectfully traversed.

It will be noted that both independent claims 1 and 17 require, *inter alia,* a bit of a binary data set to indicate requested memory block size and to be associated with an entry in a separate lookup table associated with one of different levels. The appropriate level is then determined from the lookup table entry associated with a bit of the binary data set.

As will be explained in much more detail below, the Examiner's analysis of McMahon is believed to be flawed, *inter alia,* because the Examiner has tried to read McMahon's master bitmap index as both the lookup table and the binary data set recited in claims 1 and 17. However, because these recitations describe two different and distinct entities, they cannot be anticipated by the single master bitmap index of McMahon.

The lookup table of claim 1 contains entries indexing memory size levels (e.g., see the lookup table in Fig. 4 wherein bits 0-13 index level 0, bits 14-15 index level 1, bits 16-18 index level 2; bits 19-21 index level 3, bits 22-24 index level 4, bits 25-27 index 5, and bits 28-30 index level 6).

Each bit of the lookup table is associated with a bit of a binary data set indicating the size of a requested memory segment. The appropriate level is determined from the lookup table on the basis of the most significant set bit of the binary data set.

Thus, the lookup table of claim 1 enables determination of the appropriate level in a single operation.

It is important to note that the lookup table of claim 1 does not index levels containing free segments. Instead, the lookup table points to the bit of a binary data set (e.g., a root bitmap) having the required size, regardless of whether or not free segments are actually available in that level.

Whether or not segments in that level are free for allocation is determined on the basis of the content of the binary data sets (e.g., bitmaps). However, the bitmaps are distinct from the lookup table and are separately claimed (e.g., see dependent claim 9).

McMahon uses "free lists" of memory segments of different sizes, e.g., 16 bytes, 32 bytes, etc. (see TABLE 1). The dynamic memory allocator rounds the memory request size to the nearest segment size (5:27-30). McMahon also uses a hierarchical bitmap index to identify free segments.

The McMahon bitmap index may consist of a master bitmap index 310 and group bitmap indexes 315, 320, 330 (Fig. 3B). The master bitmap index indicates the status of each group, i.e., whether at least one memory segment in a corresponding group is free (7:17-21). The bits in each group bitmap indicate whether at least one memory segment of the corresponding segment size is free (7:26-28).

The Examiner believes that the lookup table of claim 1 corresponds to the master bit index of McMahon – and that in McMahon, determining the appropriate level is performed on the basis of the most significant bit of a binary set because McMahon teaches rounding up the requested size to the nearest segment size (i.e., effectively setting a new most significant bit).

The Examiner's analysis is in error for several reasons. For example:

Reason (1)

Arguably, the master bit index of McMahon corresponds to the root bitmap of claim 9. In fact, in the rejection of claim 9 – directed more specifically to the root bitmap – the Examiner objects that the feature of a root bitmap is not new in view of the master bit index in McMahon. However, the master bit index in McMahon cannot at the same time correspond to both the lookup table and the root bitmap of the applicants' claimed invention. According to the claimed invention, the lookup table and the binary data set (e.g., a root bitmap) are different distinct features provided for different distinct purposes (and as such are claimed separately).

Reason (2)

In any case, the Examiner has apparently misinterpreted the claimed lookup table feature, which is used to identify the appropriate level of memory segments. Unlike the master bit index of McMahon (and the distinct different root bitmap of applicants' invention), it is not used to identify free segments.

Reason (3)

Furthermore, McMahon contains no suggestion of determining the appropriate level from the lookup entry associated with the most significant set bit of a binary data set indicating the size of a requested memory segment. The rounding up is irrelevant and, in many cases, would not affect the most significant bit at all. Take the example of

requests of 70 bytes and 100 bytes. 70 bytes correspond to the binary value of 1001000, while 100 bytes correspond to 1100100. Thus, applying a rounding factor of 16 bytes – as per McMahon at 6:5 – results in rounding up 70 to 80 bytes (1010000) and 100 to 112 bytes (1110000). In both cases, the most significant bit is not affected. Thus, by definition, the most significant McMahon bit cannot be used to determine the appropriate free list.

To better illustrate distinctions between applicants' claimed invention and McMahon, the following table compares the steps of the presently claimed invention with the corresponding steps of McMahon, using the specific example described in McMahon (6:24-27 and 7:43 to 8:24):

Step	Applicants' invention	McMahon	Comment
Receiving 100 byte memory request, corresponding to the binary data set 1100100	Determining the most significant set bit, i.e., bit no. 6	Rounding up to 112 bytes (1110000)	The rounding does not affect the most significant bit.
Determining appropriate "level" (terminology used in applicants' application) or "free list" (terminology used in McMahon)	Determining the content of bit no. 6 in the lookup table. As per the example of Fig. 4 the content is 0, i.e., the appropriate level is level 0.	"To search for a 112 byte block, the dynamic memory allocator 50 starts with the seventh free list to search for an available block." 6:26-28.	There is no indication how McMahon determines that the search is to start with the 7th free list (corresponding to 112 byte blocks as per TABLE 1 of McMahon). In particular, there is no disclosure of using a "lookup table" for this purpose. Certainly, the "master bit map index" alleged to correspond to the lookup table of applicants' invention is not used at this stage. Moreover, as shown above, the determination of the appropriate

			"free list" cannot be made on the basis of the most significant bit because this is the same for, say a 70 byte request which would have to start with the 6th group instead.
Determining whether a free memory segment is available in the appropriate "level" or "free list"	Each bit of the root map corresponds to one of the levels. If the corresponding bit is 1, then there is at least one free segment in the appropriate level.	"For a 112 byte block request, the dynamic memory allocator computes that free list 7, which indicates the status of 112 byte memory blocks, is part of group 1. [...] The dynamic memory allocator 50 checks the master bit map index to ascertain that group 1 contains some non-empty free lists." 7:55-61.	There is no indication how McMahon determines that free list 7 is part of group 1.
Determining a sufficiently large free segment	If the free segment in the appropriate level is not large enough, the next larger level (corresponding to the next higher bit of the root bitmap) is examined.	If there are no available memory blocks, the dynamic memory allocator returns to the master bit map index 340. From the master bit map index, the dynamic memory allocator determines the next appropriate non-empty group of free lists. 7:66 to 8:4.	

Claim 1 is distinguished from McMahon in at least the following claimed features:

- Each bit of the binary data set that indicates the requested memory block size is associated with an entry of a lookup table associated with one of different levels, and
- The appropriate level is determined from the lookup table entry associated with the most significant set bit.

It will be noted that independent claim 17 analogously requires a lookup table, wherein each entry of the lookup table is associated with a bit of a binary data set that indicates size of a requested memory block, and wherein each entry of the lookup table indicates one of the levels. That is, claim 17 also requires separate and distinct things when reciting a "lookup table" and associated bits of a "binary data set". Accordingly, for similar reasons, independent claim 17 can also not possibly be anticipated by McMahon.

Given the fundamental deficiencies of McMahon already noted with respect to independent claims 1 and 17, it is not necessary at this time to detail additional deficiencies of McMahon with respect to other aspects of the rejected claims. Suffice it to note that, as a matter of law, it is impossible to support a *prima facie* case of anticipation unless the cited single prior art reference teaches each and every feature of each rejected claim.

The rejection of claim 8 under 35 U.S.C. §103 as allegedly being made "obvious" based on McMahon in view of RedHat is also respectfully traversed.

Fundamental deficiencies of McMahon have already been noted above and are not supplied by RedHat. Accordingly, the Examiner's basic premise for this ground of rejection is incorrect and it is, therefore, unnecessary to further discuss additional deficiencies of this allegedly "obvious" combination of references at this time. In particular, as a matter of law, it is not possible to support even a *prima facie* case of

"obviousness" unless the cited prior art collectively at least teaches or suggests each and every feature of each rejected claim.

The rejection of claims 12-16 and 19-22 under 35 U.S.C. §103 as allegedly being made "obvious" based on McMahon in view of Morzy is also traversed – for similar reasons. In particular, fundamental deficiencies of McMahon have already been noted above, and thus demonstrate the underlying premise of this ground of rejection to be clearly erroneous. Accordingly, for reasons already noted, it is not necessary at this time to discuss additional deficiencies of this allegedly "obvious" combination of references with respect to other aspects of these rejected claims.

The rejection of claims 27-34 under 35 U.S.C. §103 as allegedly being made "obvious" based on McMahon in view of Wilson is also respectfully traversed – for similar reasons. In particular, Wilson does not supply the already noted deficiencies of McMahon – and the fundamental premise of this ground of rejection that McMahon teaches all that is found within parent claims is fundamentally flawed for reasons already noted above. Accordingly, as mentioned before, it is not necessary at this time to detail additional deficiencies of this allegedly "obvious" combination of references with respect to the other aspects of these rejected claims.

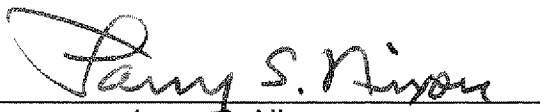
The rejection of claim 41 under 35 U.S.C. §103 as allegedly being made "obvious" based on McMahon in view of Stallings is also respectfully traversed – for the same reasons. Namely, the fundamental premise of this ground of rejection is flawed for reasons noted above regarding a parent claim and McMahon. Stallings does not supply those deficiencies and it is, accordingly, not necessary at this time to discuss additional deficiencies of this allegedly "obvious" combination of references with respect to additional aspects of this rejected claim.

The rejection of claims 42-43 under 35 U.S.C. §103 as allegedly being made "obvious" based on McMahon in view of Rubini is also respectfully traversed – for similar reasons. Rubini does not supply the above-noted deficiencies of McMahon. The underlying fundamental premise of this ground of rejection (i.e., that McMahon anticipates earlier parent claims) has already been demonstrated to be erroneous for reasons noted above. Accordingly, it is not necessary at this time to detail additional deficiencies of this allegedly "obvious" combination of references with respect to other aspects of these rejected claims.

There being no other outstanding issues, it is believed that this entire application is now in allowable condition, and a formal notice to that effect is earnestly solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
Larry S. Nixon
Reg. No. 25,640

LSN:lef

901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100